HP StorageWorks

Replacing a Gigabit Link Module (GLM) in an HSG60 or HSG80 Array Controller

Read instructions completely before beginning the installation procedure

®

invent

About these instructions

This document contains instructions for installing a gigabit link module (GLM) in an HP StorageWorks HSG60 or HSG80 array controller.
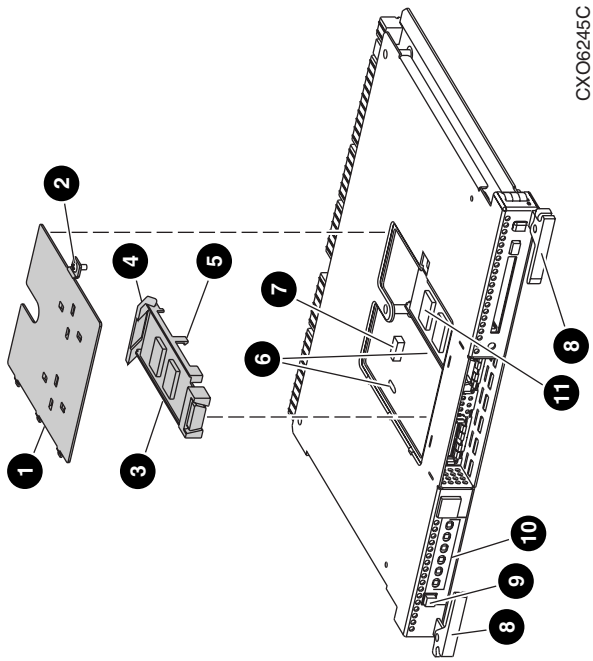
Note: For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, refer to the appropriate array controller user guide or maintenance and service guide.

Procedures in these instructions:

- Replacing a GLM in single-controller configurations, page 1
- Replacing a GLM in dual-redundant controller configurations, page 2

General information

Figure 1 shows the location of GLMs in an HSG60 or HSG80 controller.

Figure 1: Location of GLMs in an HSG60 or HSG80 controller

CXO6245C

❶ Access door
❷ Screw
❸ GLM
❹ Release lever
❺ Locking tab
❻ Guide holes
❼ GLM connector
❽ Retaining levers
❾ Reset button
❿ Operator control panel (OCP) LEDs
⓫ Port 2 GLM

Tip: Refer to Figure 1 while completing removal and installation procedures and for reference of specific controller components.

Replacing a GLM in single-controller configurations

Use the steps in "Removing a GLM" and "Installing a GLM" to replace a GLM in single-controller configurations.

⚠ **Caution:** Static electricity can easily damage a controller or GLM. Wear a snug-fitting, grounded electrostatic discharge (ESD) wrist strap.

Removing a GLM

Use the following steps to remove a GLM in single-controller configurations:

1. Check the controller to make sure it is operating:
   - If the controller is operating, connect a PC or terminal to the controller maintenance port of the failed GLM.
   - If the controller is not operating, go to step 6.

2. From the host console, stop all host activity to the controller, and then dismount the logical units in the subsystem.

3. For Microsoft® Windows 2000® or Windows NT® platform users, shut down the server.

4. Run the *Fault Management Utility (FMU)* to obtain the last failure codes, if desired.

5. Shut down "this controller" by entering the following command:

   `SHUTDOWN THIS_CONTROLLER`

   Note: After the controller shuts down, the **Reset** button and the first three port LEDs turn on (see Figure 2). This can take several minutes depending on the amount of data that needs to be flushed from the cache module.
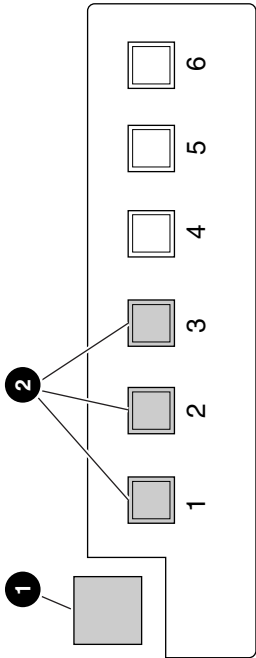
Figure 2: Controller Reset button and first three port LEDs on the OCP

❶ Reset button
❷ First three port LEDs

CXO6991A

6. Disconnect all host bus cables from the controller.

   ⚠ **Caution:** For fiber optic cables without extender clips, use thin needle nose pliers to remove the cable from the controller to avoid damaging the cable (see Figure 3).
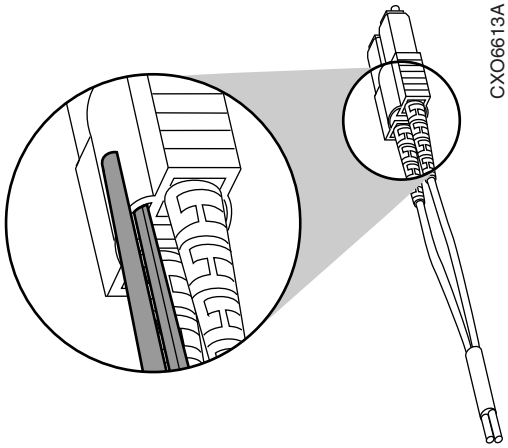
Figure 3: Using thin needle nose pliers to disconnect a fiber optic cable

CXO6613A

7. If connected to an operational controller, disconnect the PC or terminal from the controller maintenance port.

8. Disengage both retaining levers, remove the controller containing the failed GLM from the enclosure, and place the controller on an antistatic bag or a grounded antistatic mat.

9. Unscrew the access door screw on top of the controller.

10. Remove the access door and set the door aside.

11. Disengage the GLM locking tabs that protrude through the guide holes on the bottom side of the controller.

12. Operate the release lever on the exposed end of the GLM by pressing the lower end of the release lever with your index finger while pulling the raised end up with your thumb.

13. Remove the GLM.

Installing a GLM

Use the following steps to install a GLM in single-controller configurations:

Note: Before inserting the new GLM, locate the holes on the controller board where the GLM will reside.

1. Insert the new GLM by placing the GLM cable connection end through the opening on controller front from the top.

2. Align the locking tab on the bottom of the replacement GLM with the board guide holes, and press firmly to seat the GLM.

3. Press the release lever firmly into place to secure the GLM.

4. Install the access door on top of the controller, and then secure the door with the screw.

5. Carefully align the controller in the appropriate guide rails.

   ⚠ **Caution:** Misalignment can damage the backplane.

6. Insert the controller and engage the retaining levers.

See other side

Note: After the GLM is fully seated, the controller starts automatically, and the Reset LED turns on.

A controller restart can take as long as 60 seconds, indicated by the temporary cycling of the port LEDs and a flashing Reset button.

Note: If the controller did not restart, use the following steps:

a. Press and hold the controller Reset button.

b. Reseat the controller program card.

c. Release the Reset button.

7. Connect a PC or terminal to the controller maintenance port.

8. From the CLI prompt, display details about the configured controller using the following command:

   SHOW THIS_CONTROLLER FULL

9. Set the date and time using the following command:

   SET THIS_CONTROLLER TIME=dd-mm-yyyy:hh:mm:ss

10. Connect all host bus cables to the controller.

11. Mount the logical units on the host.

12. For Windows 2000 or Windows NT platform users, restart the server.

13. Disconnect the PC or terminal from the controller maintenance port.

Replacing a GLM in dual-redundant controller configurations

Use the steps in "Removing a GLM" and "Installing a GLM" to replace a GLM in dual-redundant configurations.

Tip: Refer to Figure 1 on page 1 while completing removal and installation procedures and identifying specific controller components.

⚠ **Caution:** Static electricity can easily damage a controller or GLM. Wear a snug-fitting, grounded ESD wrist strap.

Removing a GLM

Use the following steps to remove a GLM in dual-redundant controller configurations:

1. Connect a PC or terminal to the maintenance port of the operational controller.

   The controller connected to the PC or terminal becomes "this controller." The controller being removed becomes the "other controller."

2. Disable failover and take the controllers out of the dual-redundant configuration with one of the commands below:

   SET NOFAILOVER

   or

   SET NOMULTIBUS_FAILOVER

3. Start the *Field Replacement Utility* (*FRUTIL*) with the following command:

   RUN FRUTIL

4. Enter N(o) to the question about replacing the cache battery.

5. Enter 1 for the remove a controller or cache module option.

6. Enter 2 for the remove "other controller" option.

7. Enter Y(es) to confirm intent to remove the "other controller."

8. Wait for *FRUTIL* to quiesce the device ports—indicated by an "All device ports quiesced" message.

⚠ **Caution:** Failure to allow the ports to quiesce can result in data loss. Quiescing can take several minutes.

Note: A countdown timer allows a total of 2 minutes to remove the controller. After 2 minutes, "this controller" exits *FRUTIL* and resumes operations. If this happens, return to step 3 and proceed.

9. Remove the "other controller" in the subsystem:

   a. Disconnect controller host bus cables or terminators.

   ⚠ **Caution:** For fiber optic cables without extender clips, use thin needle nose pliers to remove the controller cable to avoid damaging the cable (see Figure 3 on page 1).

   b. Disengage both retaining levers, and then remove the controller containing the failed GLM from the enclosure.

   c. Place the controller on an antistatic bag or a grounded antistatic mat.

10. Enter N(o) to the question about a replacement controller. *FRUTIL* exits.

11. Unscrew the screw that secures the controller access door.

12. Remove the access door and set the door aside.

13. Disengage the GLM locking tabs that protrude through the guide holes on the bottom side of the controller.

14. Operate the release lever on the exposed end of the GLM by pressing the lower end of the release lever with your index finger while pulling the raised end up with your thumb.

15. Remove the GLM.

Installing a GLM

Use the following steps to install a GLM in dual-redundant controller configurations:

Note: Before inserting the new GLM, locate the holes on the controller board where the GLM is to reside.

1. Insert the new GLM by placing the cable connection end of the GLM through the opening on the front of the controller from the top.

2. Align the locking tab on the bottom of the replacement GLM with the board guide holes, and press firmly to seat the GLM.

3. Press the release lever firmly into place to secure the GLM.

4. Install the access door on top of the controller and secure the door with the screw.

5. Connect a PC or terminal to the maintenance port of the operational controller.

Note: The controller connected to the PC or terminal becomes "this controller;" the controller being installed becomes the "other controller."

6. Ensure that the controller configuration is customized to your needs, and then record the controller configurations (for example, Failover mode, cache status, serial numbers, SCSI mode, mirrored or nonmirrored information, and so forth).

7. Start *FRUTIL* with the following command:

   RUN FRUTIL

8. Enter N(o) to the question about replacing the cache battery.

9. Enter 2 for the install a controller or cache module option.

10. Enter 4 to exit *FRUTIL*.

11. Enter Y(es) to confirm intent to install the "other controller." *FRUTIL* quiesces the device ports and displays a message indicating that the controller is being installed.

12. Wait for *FRUTIL* to quiesce the device ports—indicated by an "All device ports quiesced" message.

⚠ **Caution:** Failure to allow the ports to quiesce can result in data loss. Quiescing can take several minutes.

13. Carefully align the controller in the appropriate guide rails.

⚠ **Caution:** Misalignment can damage the backplane.

14. Insert the controller, and then engage the retaining levers.

Note: In step a, ensure that the program card is *not* installed in the replacement controller.

   a. Insert the controller (*without the program card installed*) into the appropriate bay, and then engage the retaining levers.

   b. Press and hold the controller **Reset** button, insert the program card, and continue holding the **Reset** button.

   c. Press and hold controller Port #5 button and continue holding the **Reset** button (see Figure 4), release the **Reset** button and continue holding the Port #5 button for an additional 5 to 20 seconds.
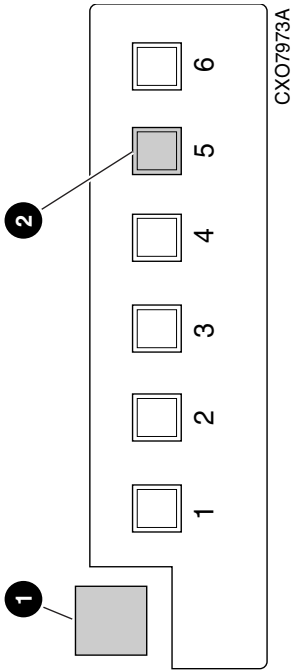
① Reset button   ② Port #5 button and LED

CXO7973A

Figure 4: Controller Reset button and Port #5 button on the OCP

The nonvolatile memory in the replacement controller is updated and halts with an LED code of 33.

   d. Press and release the **Reset** button on the controller.

   The controller restarts normally.

   e. Wait at least 15 seconds after releasing the **Reset** button, and then immediately complete step 15 below. Be sure to wait 15 seconds *before* continuing to step 15.

Note: A controller restart can take as long as 60 seconds, indicated by the temporary cycling of the port LEDs and a flashing **Reset** button.

15. Press **Enter** or **Return** within 3 minutes of completing substep 14e above to exit *FRUTIL*, and then wait 1 minute to allow the controller to restart.

Note: If you do not press **Enter** or **Return** within 3 minutes in step 15, the operational controller issues an automated command to cancel the installation of the replaced controller. This cancellation causes all the port LEDs on the controller to go off. If this situation occurs, press **Enter** to exit *FRUTIL*, and then, from the operational controller, enter:

   RESTART OTHER_CONTROLLER

16. Configure the controller as described in the appropriate array controller user guide or CLI reference guide.

⚠ **Caution:** In step 17, entering the appropriate SET command is critical. Enabling an incorrect failover mode can cause loss of data and incur system down time.
Verify the original failover configuration and use the appropriate SET command to restore this configuration.

17. Enable failover and re-establish the dual-redundant configuration with one of the following commands:

   SET FAILOVER COPY=THIS_CONTROLLER

   or

   SET MULTIBUS_FAILOVER COPY=THIS_CONTROLLER

   This command copies the subsystem configuration from "this controller" to the "other controller."

18. If desired, verify the failover configuration:

   SHOW THIS_CONTROLLER FULL

19. To verify that the new GLM is functional, enter:

   SHOW OTHER_CONTROLLER

20. Reconnect the host bus cables to the "other controller."

21. Disconnect the PC or terminal from the controller maintenance port.